

CLAIMS

What is claimed is:

1. An electromagnetic transducer motor structure comprising:
a yoke;
a magnet and plate stack of a plurality of components including,
a first permanent magnet magnetically coupled to the yoke,
a first magnetically conductive plate magnetically coupled to the first permanent magnet(s) and defining a first magnetic air gap with the yoke; and
a first shorting ring fixture coupled to, and coaxially aligning, a set of fixtured components, wherein the set of fixtured components includes at least two of the yoke, the first permanent magnet, and the first plate.
2. The electromagnetic transducer motor structure of claim 1 wherein:
the set of fixtured components includes the yoke.
3. The electromagnetic transducer motor structure of claim 1 wherein:
the set of fixtured components includes the plate.
4. The electromagnetic transducer motor structure of claim 1 wherein:
the yoke comprises a cup;
the first permanent magnet comprises an internal magnet; and
the first plate comprises an internal plate.
5. The electromagnetic transducer motor structure of claim 4 wherein:
the set of fixtured components includes the cup and the internal plate.
6. The electromagnetic transducer motor structure of claim 1 wherein:
the yoke comprises a pole plate;
the first permanent magnet comprises an external magnet; and
the first plate comprises an external plate.

- 1 7. The electromagnetic transducer motor structure of claim 4 wherein:
2 the set of fixtured components includes the pole plate and the external plate.
- 1 8. The electromagnetic transducer motor structure of claim 1 wherein:
2 the shorting ring fixture is coupled to, and coaxially aligns, a first one of the fixtured
3 components by one of an OD and an ID of the shorting ring fixture mating with the other of an
4 OD and an ID of the first one of the fixtured components.
- 1 9. The electromagnetic transducer motor structure of claim 1 wherein:
2 the shorting ring fixture is coupled to, and coaxially aligns, a first one of the fixtured
3 components by fitting into a groove in the first one of the fixtured components.
- 1 10. The electromagnetic transducer motor structure of claim 9 wherein:
2 the shorting ring fixture is coupled to, and coaxially aligns, a second one of the fixtured
3 components by fitting into a groove in the second one of the fixtured components;
4 wherein the first and second ones of the fixtured components are adjacent each other,
5 whereby the shorting ring fixture is buried within the motor structure.
- 1 11. The electromagnetic transducer motor structure of claim 1 wherein:
2 the magnet and plate stack further comprises a second magnetically conductive plate
3 coupled between the permanent magnet and the yoke and defining a second magnetic air gap
4 with the yoke; and
5 the set of fixtured components includes the first plate and the second plate.
- 1 12. The electromagnetic transducer motor structure of claim 11 wherein:
2 the first and second plates are substantially mirror images of each other.
- 1 13. The electromagnetic transducer motor structure of claim 1 wherein:
2 the set of fixtured components includes the first plate; and
3 wherein the first plate includes,
4 a first portion which defines the magnetic air gap, and

5 a second portion which has a smaller outer dimension than the first portion and
6 which is disposed within and fixtured by the first shorting ring fixture.

1 14. The electromagnetic transducer motor structure of claim 1 further comprising:
2 a second shorting ring fixture coupled to, and coaxially aligning, a second set of
3 components in the motor structure.

1 15. The electromagnetic transducer motor structure of claim 1 further comprising:
2 a frame coupled to the electromagnetic transducer motor structure;
3 a diaphragm assembly coupled to the frame; and
4 a voice coil assembly coupled to the diaphragm assembly and including a voice coil
5 disposed within the magnetic air gap.

1 16. An improvement in an electromagnetic transducer that includes a diaphragm assembly
2 coupled to a motor structure, the diaphragm assembly including a voice coil, the motor structure
3 including a magnetic circuit having a yoke, a magnet and plate stack, and a magnetic air gap
4 within which the voice coil is disposed, wherein the improvement comprises:
5 a first electrically conductive fixture mechanically, radially aligning at least two
6 components in the motor structure; and
7 the fixture being disposed in close proximity to the voice coil.

1 17. The improvement of claim 16 in an electromagnetic transducer, wherein the improvement
2 further comprises:
3 the yoke is one of the at least two components which are mechanically, radially aligned
4 by the first electrically conductive fixture.

1 18. An audio speaker driver comprising:
2 a diaphragm assembly including,
3 a diaphragm, and
4 a voice coil coupled to the diaphragm; and
5 a motor structure including,
6 a yoke,

7 a permanent magnet magnetically coupled to the yoke,
8 a top plate magnetically coupled to the permanent magnet and defining a
9 magnetic air gap with the yoke, wherein the voice coil is disposed within the magnetic air
10 gap, and
11 an electrically conductive, magnetically non-conductive shorting ring coupled to,
12 and fixturing into a fixed radial position with respect to each other, the top plate and at
13 least one other component of the audio speaker driver.

1 19. The audio speaker driver of claim 18 wherein:
2 the other component comprises the yoke.

1 20. The audio speaker driver of claim 19 wherein:
2 a diameter of the magnet and a diameter of the shorting ring are different, whereby there
3 exists an air passage between the magnet and the shorting ring;
4 an end of the shorting ring fixture which is coupled to the yoke includes at least one
5 notch in communication with the air passage.